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BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

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SUBJECT—

TITLE

FOREST INSECT SURVEY - SEASON OF 1942

SIERRA NATIONAL FOREST, CALIFORNIA

Annex 1
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1942

by

J. E. Patterson and G. R. Struble
Berkeley, California
February 15, 1943

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Forest Insect Laboratory
Berkeley, California
February 15, 1943

FOREST INSECT SURVEY - SEASON OF 1942

SIERRA NATIONAL FOREST, CALIFORNIA

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FOREST INSECT SURVEY - SEASON OF 1942

SIERRA NATIONAL FOREST, CALIFORNIA

INTRODUCTION

The annual forest insect survey of the Sierra National Forest was completed by John E. Patterson and George R. Struble during the week of October 15, 1942. Owing to low insect activity in the pine stands, this survey was less intensive than in former years. Much of the timbered area was covered by general reconnaissance from the many vantage points along roads which traverse a large part of the forest.

In the Chiquito Basin area three road strips were established earlier in the season by Philip C. Johnson as a test of survey methods that may be adaptable in that area. The losses within these road strips were recorded during the October survey. Also, the regional survey plot (RS-9), located on the Little Jackass Creek drainage was checked again, completing a continuous record dating from 1931.

Except for the Chiquito area the estimates of insect losses on the forest are based on road-strip measurements and on counts of fading trees as noted by different entomological units. These units are designated on the map accompanying this report.

RESULTS OF THE SURVEY

Character of the Infestation

Insect conditions generally were in a low endemic status over the entire forest. Western pine beetle infestations were found confined primarily to single trees widely separated from each other. The only exceptions were on the Little Jackass area of the Chiquito Basin and in the Daulton unit near the San Joaquin burn, where a few groups of attacked trees were noted. One group near Little Jackass Creek contained 7 trees. Two groups, each containing about 25 trees, were noted by Johnson in August near Daulton Station, close to the upper edge of the burned area.

The trees selected for attack during the year varied between intermediate and decadent classes except those in groups. The groups were composed mainly of low risk trees.

Sugar pines infested with the mountain pine beetle were widely distributed, averaging not over two trees per section in most units. The area of heaviest infestation was noted during August on the Huntington Unit by Johnson who reported a current infestation of 7 to 10 trees on some sections in that locality. In the Soquel Unit and on Patterson Mountain, there was also more activity than on other units of the forest. Attacks were confined mainly to older trees with vigorous crowns, but a number of vigorous young trees were killed also.

The results of road strip surveys in the Chiquito and Little Jackass areas are shown in Table 1. Except on strip RD-3, there is indicated a very light infestation. Strip RD-3 is an exaggeration of conditions because of the occurrence of a group of 7 trees which was the only loss on the strip. No infested sugar pines or Jeffrey pines were found.

Table 1. Summary of Pine Losses on Chiquito Basin Road Strips.

Sample Strip	Timbered Acreage	Timber killed in 1941 and 1942. Volume per acre in board feet.					
		Ponderosa pine		Sugar Pine		Jeffrey pine	
		1941	1942	1941	1942	1941	1942
RD-1	68	0	0	0	0	0	0
RD-2	120	36	12	0	0	0	0
RD-3	32	5	79	0	0	0	0

A summary of the losses on the Sierra National Forest for the three year period from 1940 to 1942 is shown by Tables 2 and 3. Measured plot losses for this period from plot RS-9, which is representative of the Little Jackass unit, is shown in Table 4.

Table 2. Estimated Unit Pine Losses for the Years 1940, 1941, and 1942.

Entomological Unit	Acreage	1940		1941		1942	
		No. Trees	MBM	No. Trees	MBM	No. Trees	MBM
Jerseydale *	12,800	120	48	70	30	60	25
Footman Ridge	9,600	55	40	65	52	60	50
Miami Mountain	11,500	90	40	80	32	40	15
Signal Ridge	12,800	40	56	20	30	15	22
Hugh Ryan	14,700	40	32	20	8	10	5
Bass Lake	22,400	70	28	40	16	30	15
Soquel	16,000	60	50	80	68	35	30
Chiquito	34,500	280	112	400	460	200	220
Jackass	25,600	240	190	450	500	300	320
Rock Creek	16,600	90	60	120	82	50	40
Cascadel	11,500	110	33	75	32	35	18
Daulton	33,000	1,400	840	820	396	410	220
Canyon	14,000	800	640	160	104	60	40
Huntington	29,000	160	112	130	70	70	42
Shaver	32,000	300	360	260	200	20	14
Jose Basin	19,200	60	15	40	10	10	3
Blue Canyon	25,600	140	160	80	24	40	14
Dinkey	25,600	100	60	90	55	30	20
Fence Meadow	11,500	175	350	100	78	40	32
Patterson *	23,000	200	120	150	100	90	72
Totals	400,900	4,530	3,346	3,250	2,347	1,605	1,217

* Jerseydale and Patterson units are not included on the maps accompanying this report.

Table 3. Estimated Pine Losses per Timbered Acre by Entomological Units, 1940 - 1942.

Entomological Unit	Timbered Acreage	1940 BM per Acre	1941 BM per Acre	1942 BM per Acre
Jerseydale	7,600	6	4	3
Footman Ridge	3,800	11	13	11
Miami Mountain	2,500	16	13	6
Signal Ridge	3,200	18	10	7
Hugh Ryan	4,400	7	2	1
Bass Lake	5,700	5	3	3
Soquel	3,800	13	18	8
Chiquito	16,000	7	29	14
Jackass	8,000	24	63	40
Rock Creek	3,800	16	22	11
Cascadel	3,200	10	10	6
Daulton	12,000	70	33	18
Canyon	3,200	200	32	12
Huntington	2,000	56	35	21
Shaver	6,400	56	31	2
Jose Basin	3,800	4	3	1
Blue Canyon	7,000	23	3	2
Dinkey	7,600	8	7	3
Fence Meadow	6,000	60	13	5
Patterson	9,600	12	10	7
Totals	119,600	622	354	181
Averages	5,980	31	18	9

Table 4. Measured Plot Pine Losses - Jackass Plot (RS-9) : 320 Acres

Tree Species	Year of Loss	No. Trees	Volume BM	Vol. BM per Ac.
Ponderosa pine	1938	33	31,080	97
	1939	27	15,680	49
	1940	4	10,340	32
	1941	6	6,510	20
	1942	14	15,340	50
	Total	84	78,950	248
Jeffrey pine	1938	1	1,690	5
	1939	1	800	3
	1940	2	3,110	10
	1941	0		
	1942	0		
	Total	4	5,600	18
Sugar pine	1938	8	5,370	17
	1939	10	17,410	55
	1940	2	10,610	33
	1941	0		
	1942	3	170	.5
	Total	23	33,560	105.5

Trend of the Infestation

The insect losses for all pine species over the entire forest is estimated at 9 feet (b.m.) per acre in 1942, with the record about 75 percent completed. This is nearly one-half the 1941 infestation and one-fourth that of 1940. Prospects for continued low endemic infestations are in evidence for 1943. The only units to be observed closely in 1943 are the Little Jackass, Daulton, and Huntington units. However, no increased activity is anticipated.

RECOMMENDATIONS

Because of the endemic status of infestations current on all units of the Sierra National Forest, no control work is recommended. Although there was a tendency toward small group attacks in the Little Jackass unit and fairly large ponderosa pine groups in the Daulton unit, this condition is attributed to an upbuilding of western pine beetle populations in trees weakened during the 1939 San Joaquin burn in the vicinity of these units; and it is expected that these infestations will die out soon after the worst fire injured trees are killed. Larger and more frequent groups of killed trees were evident in 1941 than in 1942, thus indicating a declining infestation. The occurrence of groups on these two units is not anticipated in 1943.

The situation in sugar pine on the Huntington unit as reported by Johnson and on the upper Canyon unit indicates that the mountain pine beetle is somewhat more aggressive there than on other portions of the forest. This is attributed in part to the fire-weakened trees near the upper limits of the burn. The local condition on these two units is not serious, and a decline in activity is expected for 1943.

SUMMARY

A. The 1941 infestation (completed records)

1. Total pine timber killed on reporting areas (Table 2)

a.	Number of trees	3,250
b.	Volume	2,347,000 board feet
c.	Average volume per acre	18 board feet

2. Present classification - low endemic

3. Primary insects - Western pine beetle in ponderosa pine.
Mountain pine beetle in sugar pine.
Jeffrey pine beetle in jeffrey pine.

4. Trend - decrease over 1940.

5. Control work completed - Direct control work was carried out on the Shaver unit during the winter and spring periods of 1942. This project was recommended by the Bureau following the survey of October, 1941. It was a cooperative project between the Sierra Forest and The Southern California Edison Company. It involved a total of 13,800 acres of ponderosa-sugar pine stands. A total of 97 ponderosa pine trees and a total of 88 sugar pine trees containing a combined volume of 443,690 board feet were treated by the peel and burn method of control. The loss reduction due to this work amounted to 93 percent.

B. The 1942 infestation (75 percent completed records)

1. Primary insects - Western pine beetle in ponderosa pine.
Mountain pine beetle in sugar pine.
Jeffrey pine beetle in Jeffrey pine.

2. Probable trend - reduction over 1941.

3. Control recommended - none

UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
FOREST INSECT LABORATORY - BERKELEY, CALIFORNIA

FOREST INSECT SURVEY

SIERRA-YOSEMITE INFESTATION AREA

MARIPOSA AND MADERA COUNTIES, CALIFORNIA

MOUNT DIABLO MERIDIAN

SCALE
0 1 2 3 4 5 6
MILES

N

T.1S.
T.2S.
T.3S.
T.4S.
T.5S.

R.20E. R.21E. R.22E. R.23E. R.24E.

119°20'
40'
30'
50'
40'
37° 30'

YOSEMITE CREEK RANGER STA.
Tenaya Lake
Rafferty Pk.
YOSEMITE CREEK
PORCUPINE FLAT
TUOLUMNE CO.
MARIPOSA CO.
Indian Rock
ECHO
SUNRISE MTN
Vogelsang peak
CRANE FLAT R.S.
CRANE FLAT
EL CAPITAN
Boundary Hill
Basket Dome
Clouds Rest
TENAYA CR.
North Dome
Eagle Peak
Half Dome
Merced Lake
Mclure Fork
NATL PARK
NATL FOREST
El Capitan
Glacier Pt.
Sentinel Dome
YOSEMITE VALLEY
MERCED RIVER
SUNRISE
Washburn Lake
LAKE
DRAINAGE
Mt. Starr King
Mt. Clark
Y-3
Y-2
Illilouette Creek
Gray Peak
CHINQUAPIN R.S.
Red Pk.
Edna Lake
Triple Divide Pk.
Ostrander Lake
HORSE RIDGE
MARIPOSA CO.
MADERA CO.
BOUNDARY LINE
Deer Camp
Buena Vista Pk.
Chilnualna Creek
MORAINE
Breexe Lake
Gale Pk.
Chain Lakes
MEADOWS
Wawona Dome
CAMP A.E. WOOD
WAWONA
Redtop
Black Pk.
SIGNAL RIDGE
FOOTMAN RIDGE
Devil Peak
BASIN
Wawona Pt.
Raymond Mtn.
Quartz Mtn.
RANGER STA.
Iron Mtn.
MIAMI MOUNTAIN
FISH CAMP
SIERRA N.F.
MUGLER MEADOW
HUGH RYAN
MIAMI INSECT LABORATORY R.S.
SOQUEL
Fresno Dome
BEASORE MDW.

LEGEND

Unit Boundary

Sample Plot

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
FOREST INSECT LABORATORY-BERKELEY, CALIFORNIA

FOREST INSECT SURVEY
SIERRA NATIONAL FOREST
MT. DIABLO MERIDIAN

SCALE
In 0 ½ 1 2 3 4 Miles

N

LEGEND

SAMPLE PLOT — — — UNIT BOUNDARY

T. 5 S.
T. 6 S.
T. 7 S.
T. 8 S.
T. 9 S.
T. 10 S.
T. 11 S.

R. 21 E.
R. 22 E.
R. 23 E.
R. 24 E.
R. 25 E.
R. 26 E.

37° 00'
10'
20'
30'
40'
119°10'